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**Citation for published version:**

Wauthier, L & Williams, JM 2021, 'Understanding and conceptualizing childhood animal harm: A meta-narrative systematic review', *Anthrozoös*. <https://doi.org/10.1080/08927936.2021.1986262>

**Digital Object Identifier (DOI):**

[10.1080/08927936.2021.1986262](https://doi.org/10.1080/08927936.2021.1986262)

**Link:**

[Link to publication record in Edinburgh Research Explorer](#)

**Document Version:**

Publisher's PDF, also known as Version of record

**Published In:**

Anthrozoös

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## Anthrozoös

A multidisciplinary journal of the interactions between people and other animals

ISSN: (Print) (Online) Journal homepage: <https://www.tandfonline.com/loi/rfan20>

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To cite this article: Laura M. Wauthier & Joanne M. Williams (2021): Understanding and Conceptualizing Childhood Animal Harm: A Meta-Narrative Systematic Review, *Anthrozoös*, DOI: [10.1080/08927936.2021.1986262](https://doi.org/10.1080/08927936.2021.1986262)

To link to this article: <https://doi.org/10.1080/08927936.2021.1986262>



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# Understanding and Conceptualizing Childhood Animal Harm: A Meta-Narrative Systematic Review

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## ABSTRACT

Several perspectives inform research on Childhood Animal Cruelty (CAC), but these perspectives are poorly integrated with each other and there is little dialogue with the rest of the child–animal interaction (CAI) literature. This study reviews the current empirical and theoretical literature on CAC to explore issues regarding research definitions and methodologies. Following the RAMESES guidelines, we performed a meta-narrative review of the CAC literature from 2010 to 2020, including theoretical papers and original research published in English. Four databases (OVID, Web of Science, PubMed, and EBSCOhost) were searched for terms relating to children, animals, and harm in the title and keyword fields. This generated 416 results, and 69 publications were reviewed here. We explore theories of CAC in relation to the historical research strands and discuss how well they are supported by existing empirical evidence. We thematically classified empirical study findings, which showed that (1) environmental factors that predict CAC include exposure to childhood adversity, especially experiences of violence and witnessing animal cruelty, (2) CAC is recurrent or has extreme links to later interpersonal violence, (3) psychological risk factors linked to CAC include externalizing disorders, lower empathy, lower self-esteem, poorer family functioning, and attitudes accepting of cruelty, (4) witnessing animal cruelty is a serious risk factor for a range of internalizing and externalizing behaviors, and (5) a range of psychosocial barriers exist in measuring and reporting CAC. Issues with measures, population selection, and definitions focusing only on more severe forms of CAC are factors which potentially constrain the generalizability of results. We highlight the need for developmentally appropriate definitions of CAC and methods of measurement and argue that the CAC literature is not well aligned with animal welfare legislation. We propose that CAC should be integrated into a broader spectrum of childhood behaviors toward animals.

## KEYWORDS

Animal cruelty; animal harm; animal welfare; childhood; human–animal interaction

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The study of child–animal interaction (CAI) started in the mid-1960s (Ascione, 2005) with two strands of research: one showed that violent criminals and serial killers had often been cruel to animals as children (Macdonald, 1963; Mead, 1964), while Levinson (1965) demonstrated the positive effects that animals could have on children in therapeutic contexts. These two research directions, cruelty as the “dark” side of CAI on the one hand, and the positive developmental effects of CAI on the other have grown as separate fields of study, a rift first highlighted by MacDonald (1979). The “positive” CAI literature has expanded into a range of domains (McCune et al., 2014), with findings suggesting that animals can reduce stress (Beetz et al., 2012), can be sources of attachment (Julius et al., 2012; Muldoon et al., 2019), and can help with children’s socialization and empathy building (Daly & Morton, 2009). By contrast, cruelty to animals is a red flag for cycles of violence and trauma (DeGue & DiLillo, 2009), with children modeling aggressive behaviors they witness toward animals (Thompson & Gullone, 2006), is related to emotional behavioral disorders (Hawkins et al., 2017) and predictive of later violent crime (Longobardi & Badenes-Ribera, 2019). However, this rift between “positive” and “negative” CAI dichotomizes the spectrum of children’s relationships with animals and separates phenomena which can co-occur, such as attachment and harm behaviors.

The most commonly adopted definition of animal cruelty is: “all socially unacceptable behavior that intentionally causes unnecessary pain, suffering or distress and/or death to an animal” (Ascione, 1993, p. 83). While this definition provides common ground for research on animal cruelty, it is disconnected from definitions of animal welfare. From a welfare perspective, it omits several categories of mistreatment, including neglect and behaviors which are unintentionally harmful, while the reference to “social acceptability” omits certain harms depending on social or cultural context. A disconnect between animal welfare legislation and research definitions of animal cruelty is problematic because animal welfare legislation guides court cases, interventions delivered by animal welfare organizations, and cross-reporting (Ascione, 2005; Vincent et al., 2019). The Humane Society of the United States states that “Most reported animal cruelty comes in the form of neglect, with direct violence occurring less” (HSUS, 2020). The UK Animal Welfare Act (2006) states that owners are responsible for the welfare of their animals, based on the Five Freedoms (DEFRA, 2004), which includes both acts of commission and omission and unintentional harm. The link between animal welfare and childhood cases of animal harm is further complicated: parents typically have a legal duty of care for pets (in the UK, until the age of 16; Animal Welfare Act, 2006), but children can still negatively impact animal welfare.

To date, several reviews on Childhood Animal Cruelty (CAC) have been carried out (Chan & Wong, 2019; Felthous & Kellert, 1987; Miller, 2001), but only two have been systematic reviews (Hawkins et al., 2017; Longobardi & Badenes-Ribera, 2019) and both are discipline-specific (clinical psychology and criminology respectively), so that neither provides a synthesis of the whole literature. Hawkins et al. (2017) reviewed psychological risk factors for CAC and presented two major findings. First, experiences that are associated with the risk of CAC include abuse, neglect, witnessing animal cruelty, bullying, and victimization. Second, psychological issues observed to co-occur with CAC include behavioral disorders, Conduct Disorder (CD) and its modifier Callous–Unemotional (CU) Traits, and low empathy. Longobardi & Badenes-Ribera (2019) reviewed the link between CAC and interpersonal violence, finding that CAC is linked to bullying and delinquent behavior,

although motives and methods of cruelty were not reliable predictors. Despite only sharing six publications, both Hawkins et al. (2017) and Longobardi & Badenes-Ribera (2019) highlight similar issues in the field: definitions of CAC being inconsistent, methodologies relying heavily on retrospective accounts, and populations being quite narrow and therefore difficult to generalize from.

Systematic reviews typically define a set of focused research questions *within* a field, using stringent eligibility criteria to methodically select publications which answer their research questions (Page et al., 2021). Classic systematic reviews answer specific questions, but due to their narrow focus cannot provide an overview of a topic informed by multiple disciplines. A meta-narrative approach to the systematic review is designed to allow researchers approach interdisciplinary topics, fostering dialogue between the fields and the theory underpinning a topic (Wong et al., 2012). We felt an interdisciplinary review of CAC was required to explore historical changes, methodological tendencies, and review theoretical and conceptual trends. We had four objectives: (1) explore the interdisciplinary theories informing the CAC literature, (2) provide an overview of current empirical findings, (3) establish what methodological issues might affect the literature as a whole; and (4) review definitions of CAC to assess developmental appropriateness and congruence with welfare legislation. To carry out these objectives, we tested four research questions:

What are the theoretical models proposed in CAC literature?

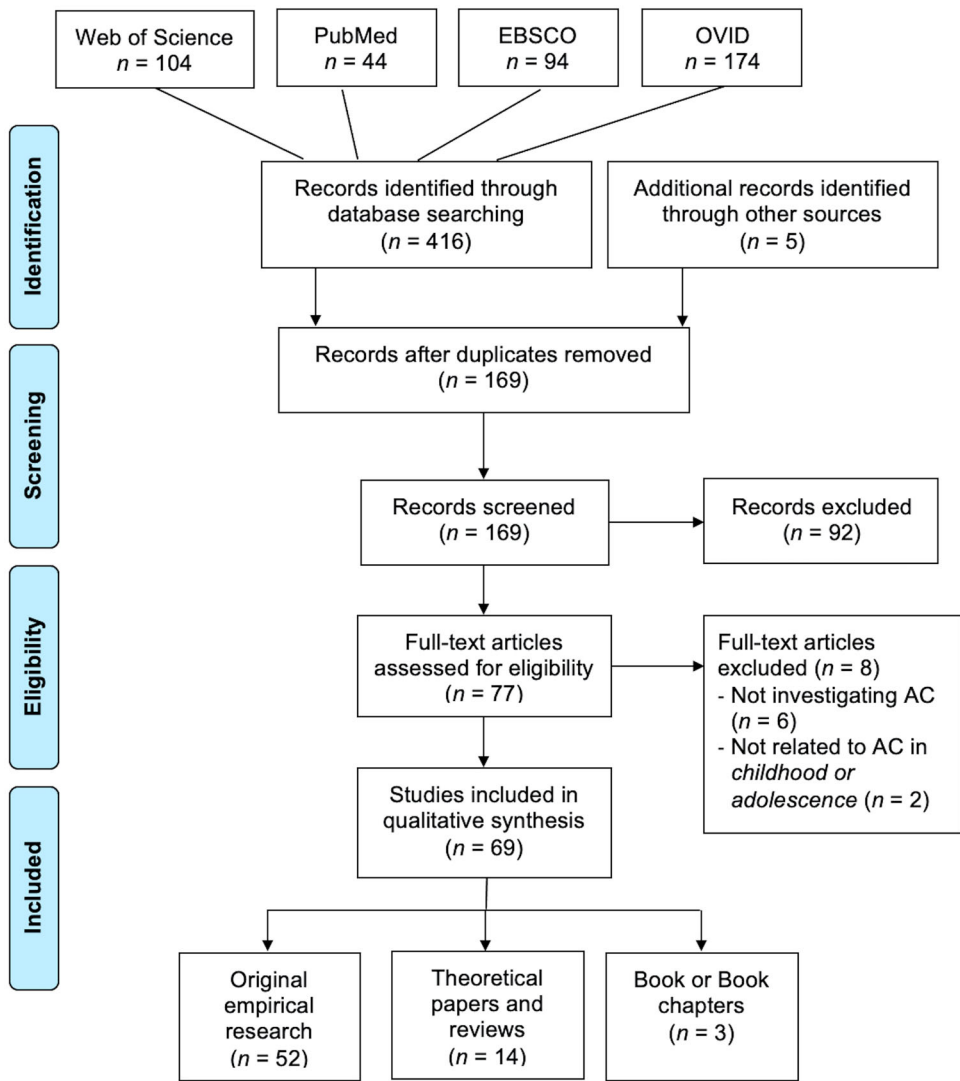
1. What are the empirical risk factors and correlates of CAC?
2. Are there methodological issues and limitations in research on CAC?
3. How is CAC typically defined and operationalized?

## Methods

### *Search Procedure and Eligibility Criteria*

All publications relating to CAC from 2010 to 2020 were included to provide a focused review of contemporary empirical research and theoretical papers. This time frame was chosen for three reasons: (1) the two existing systematic reviews cover older publications in some detail, (2) due to the interdisciplinary nature of this review, narrowing the timespan made it more feasible, and (3) we hoped to capture the most up-to-date literature on this topic.

Using both the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA; Page et al., 2021) guidelines and the related Realist And MEta-narrative Evidence Syntheses: Evolving Standards (RAMESES; Wong et al., 2012) guidelines, the literature search was carried out, across four research databases, initially in April 2020 and a second time in March 2021, as outlined in Figure 1. Eligibility criteria were that publications had to (1) be in the English language, (2) be peer-reviewed in the form of either journal articles or academic book chapters, and (3) relate to children/adolescent harm toward animals or witnessing of animal harm, assessed either directly with children or adolescents, adults commenting retrospectively on their childhood, or through parent or professional report. All research publications were included: empirical papers, case studies, theoretical papers, and literature reviews. Owing to the broad scope, search terms were applied to the Title field and, where databases permitted, additionally to



**Figure 1.** PRISMA diagram for studies included in the current meta-narrative systematic review.

keyword fields (OVID and Web of Science). In all the databases, the same key words were used, with (1) one identifier for target age group (child\* OR adolescen\* OR juvenil\* OR youth OR young OR teen), (2) one identifier for animals (animal\* OR pet\*), and (3) one identifier for harm (harm\* OR cruel\* OR abus\* OR neglect\* OR aggressi\*). These three groups were combined using the Boolean operator AND. The screening and study selection process was carried out by the first author.

**Data Extraction and Evaluation**

Information extracted from the final selection of publications included author(s), year of publication, publication title, country of research, participant demographics (such as child,

parent report, inmate retrospective report), population characteristics relating to exposure to violent or antisocial behavior (such as offenders, victims of domestic violence), adopted definition of the animal harm, and summary of the study's main findings. These are summarized in [Tables 1](#) and [2](#).

The narrative synthesis was in two parts: First, findings from theoretical papers/reviews were synthesized in the context of historical and disciplinary trends; second, empirical studies were thematically classified into five overarching themes: (1) psychological behavioral correlates of CAC, (2) CAC as a predictor of future violent behavior, (3) environmental factors predictive of CAC, (4) children's exposure to or witnessing AC, and (5) psychosocial barriers to reporting CAC and associated issues with measurement. All studies were coded by each author independently (inter-rater agreement of 94%).

A methodology quality assessment procedure was not carried out for the current review for two reasons: (1) there was too wide a range of study designs (e.g., cohort, cross-sectional, qualitative, mixed-method, theoretical), precluding a single quality assessment tool from being used, and (2) quality assessment tools do not identify issues *across* study types in a way that would meaningfully answer research questions for the current study.

## Results

Databases generated 416 results; once duplicates were removed, 124 entries remained, which were screened for relevance using title and abstract. In addition, references from the two existing systematic reviews along with reference lists/annotated bibliographies published online by the *Animals and Society Institute* and *The National Link Coalition* were consulted to determine whether any publications relating to animal cruelty in childhood had been missed; this generated an additional five studies. Records that were not peer-reviewed, did not have full publication available, and did not relate to animal harm involving children or adolescents were removed ( $n = 47$ ). The full text of the 77 remaining articles was assessed, and eight were excluded owing to their insufficient focus on childhood or adolescent animal harm. This process is summarized in [Figure 1](#) and resulted in the 69 publications reviewed here.

### *Descriptive Characteristics of the Studies*

[Table 1](#) provides details for the theoretical/review publications, while [Table 2](#) summarizes results of the empirical studies. Most publications were original empirical research ( $n = 52$ ), followed by reviews ( $n = 10$ ), theoretical papers ( $n = 4$ ), and book or book chapters ( $n = 3$ ). Studies were predominately carried out in (or had authors affiliated with) the USA ( $n = 41$ ), followed by the UK ( $n = 10$ ), other European countries ( $n = 4$ ), China ( $n = 3$ ), Australia ( $n = 2$ ), Canada ( $n = 2$ ), an international collaboration ( $n = 2$ ), and one each in India, Japan, Bahamas, Brazil, and Turkey. Some studies used the same pool of participants for several publications. Specifically, six studies used sub-samples of a larger dataset of women and children from 22 Domestic Violence shelters (Matijczak et al., 2020; McDonald et al., 2015, 2017, 2018a, 2018b, 2019), four studies used the same sample of 180 prison inmates from medium- and maximum-security prisons (Hensley et al., 2012a, 2012b, 2018; Overton et al., 2012), two studies used a sample from the Pathways to

**Table 1.** Summary of key characteristics for theoretical and review articles on childhood animal cruelty (CAC).

#	Author(s)	Date	Title	Country <sup>a</sup>	Publication type	Classification	CAC definition	Summary of findings
1	Faver	2010	School-based humane education as a strategy to prevent violence: Review and recommendations	USA	Review	Social Work/ 'The Link'	Mixed	Recommends that humane education become more mainstream and that professionals such as teachers and school psychologists become more familiar with existing resources.
2	DeGue	2011	A triad of family violence: Examining overlap in the abuse of children, partners, and pets	USA	Book Chapter	Social Work/ "The Link"	Not specified	Summarizes the existing evidence for the overlap between different forms of family violence (IPV, child abuse, and animal abuse), emphasizing the importance of cross-reporting since once form of abuse may act as a "red-flag."
3	Shapiro et al.	2013	The assessment and treatment of children who abuse animals	USA	Book	Psychology	Not specified	Suggestions for the identification and therapeutic treatment of animal cruelty in childhood.
4	Stanek	2014	The treatment of animals within families of young children: Antecedents of compassion and cruelty.	USA	Book Chapter	Social Work/ "The Link"	Not specified	Reviews and summarizes the existing literature on the link between violence and AC, and suggests educators are in a unique place to influence children and model good interactions.
5	Holoyada & Newman	2016	Childhood animal cruelty, bestiality, and the link to adult interpersonal violence	USA	Review	Criminal-legal	Mixed	Description of the legal status of AC across the United States, and a proposition for the classification of bestiality based on motivation.
6	Hawkins et al.	2017	Psychological risk factors for childhood non-human animal cruelty	UK	Review	Psychology	Ascione 1993	Highlights psychological risk factors associated with CAC, including behavioral and personality problems, along with experiences that increasing risk, including abuse, bullying, and witnessing AC.
7	Monsalve et al.	2017	The connection between animal abuse and interpersonal violence: A review from the veterinary perspective	Brazil	Review	Social Work/ "The Link"	Not specified	This review finds strong evidence for "the Link" between animal harm and violence to people, but few publications on this topic from the veterinary perspective; it suggests



8	Felthous and Calhoun	2018	Females who maltreat animals	USA	Review	Psychology	Mixed	vets should receive more training on how to intervene. Animal cruelty in males is likely different than in females, especially when they are older and are more likely to predominate in animal hoarding.
9	Lee-Kelland and Finlay	2018	Children who abuse animals: when should you be concerned about child abuse? A review of the literature	UK	Review	Social Work/ "The Link"	Ascione 1993	Animal abuse committed by older children and females is more likely to be suggestive of child abuse.
10	Henry	2018	Applying socio-cognitive models of interpersonal aggression to animal cruelty	USA	Theoretical paper	Psychology	"Infliction of unjustified physical or emotional pain, suffering, injury or death on a non-human animal that occurs outside the boundaries of social norms"	Describes the application of Social Information Processing (SIP) theory to our understanding of animal cruelty.
11	Parfitt and Alleyne	2018	Animal abuse as an outcome of poor emotion regulation: A preliminary conceptualization	UK	Theoretical paper	Psychology	Ascione 1993, but distinguishes animal cruelty from animal abuse	Drawing on other literature of interpersonal violence and emotion regulation, the authors argue this is an important topic to understand for animal cruelty, which can result from either <i>under-</i> or <i>mis-</i> regulation of emotion.
12	Chan and Wong	2019	Childhood and adolescent animal cruelty and subsequent interpersonal violence in adulthood: A review of the literature	China	Review	Criminal-legal	Ascione 1993	Highlights the increased risk of committing AC if exposed to domestic violence, and that AC is predictive of later IPV. Reviews deviance generalization, graduation hypotheses, social learning, and frustration theories.
13	Longobardi and Badenes-Ribera	2019	The relationship between animal cruelty in children and adolescent and interpersonal violence: A systematic review	Italy, Spain (EU)	Review	Criminal-legal	Ascione 1993	AC during childhood is linked to other forms of violent/antisocial behaviors. AC was associated with bullying, behavioral problems, experiences of abuse, and juvenile delinquency. Recurrent CAC was a significant predictor of adult

(Continued)

**Table 1.** Continued.

#	Author(s)	Date	Title	Country <sup>a</sup>	Publication type	Classification	CAC definition	Summary of findings
14	Mowen and Boman	2020	Animal abuse among high-risk youth: A test of Agnew's theory	USA	Theoretical paper (with original research)	Criminal-legal	Have you ever physically hurt an animal (or animals) on purpose' (Pathways to Desistance) – SR	perpetration of interpersonal violence. Mixed level model finds partial support for Agnew's theory of AC, which is a four-factor model implicating personal traits, socialization, strain (stress), and social control.
15	Ladny and Meyer	2020	Traumatized witnesses: Review of childhood exposure to animal cruelty	USA	Review	Social Work/ "The Link"	Physical abuses such as beating, shooting, and torture of animals	A range of negative outcomes were associated with witnessing AC in childhood, including trauma, perpetrations of animal cruelty, and violence towards humans. Recommendation that witnessing AC is included in work on "the Link."
16	Jegatheesan et al.	2020	Understanding the link between animal cruelty and family violence: The bioecological systems model	International	Theoretical paper	Psychology	Ascione 1993	The authors propose using Bronfenbrenner's bioecological systems model to bring together the risk factors which tend to occur around instances of animal harm, illustrating this with case studies.
17	Randour et al.	2021	Animal abuse as a type of trauma: Lessons for human and animal service professionals	USA	Review	Social Work/ "The Link"	Mixed	Presents evidence for the link in a review of legal cases and argues that not enough is done in practice to investigate AC by services such as social work or child protection workers.

<sup>a</sup>Refers the country of the authors' main affiliation. Ascione 1993 refers to the classic definition of animal cruelty: "socially unacceptable behavior that intentionally causes unnecessary pain, suffering, or distress to and/or the death of an animal."

**Table 2.** Summary of key characteristics for original research articles on childhood animal cruelty (CAC).

#	Author(s)	Date	Title	Country <sup>a</sup>	Participant demographic	CAC instrument/definition	Summary of findings	SC
1	Yamazaki et al.	2010	A comparison of maltreated children and non-maltreated children on their experiences with animals – A Japanese study	Japan	Survey with children, $n = 139$ (Maltreated = 26, Control = 113) (M/A)	BIARE (Boat Inventory of Animal Related Experiences)- SR	Compared with control children, children from maltreated background used animals as a source of support and had more interaction with animals, but were also more likely to commit and/or witness animal abuse.	1
2	Boat et al.	2011	Childhood cruelty to animals: Psychiatric and demographic correlates	USA	Analysis of psychiatric intake data, $n = 110$ (NV)	Yes/No on “animal cruelty item” – HWR	Children who were cruel to animals were more likely to have accompanying behavioral issues, such as CD, bullying, and being sexually abused.	3
3	Fielding et al.	2011	A first look at harm toward animals by Bahamians in childhood	Bahamas	Retrospective Study with adults, $n = 1,881$ (NV)	CAI (Cruelty to Animals Inventory; included harms to invertebrates) – SR	Adults who had harmed animals as children were more likely to come from homes which had domestic violence, where guns were present, and in homes participants did not consider to be “loving.”	1
4	Henderson et al.	2011	Childhood animal cruelty methods and their link to adult interpersonal violence	USA	Retrospective survey with prison inmates, $n = 180$ (PI)	“Any action where the respondent hurt or killed animals when they were children” – SR	Hitting was the most common method of animal cruelty (4/5), followed by kicking or shooting (1/3), and sex (1/5). Only sex and age of first incident were predictive of later interpersonal offences.	2
5	Lucia and Killias	2011	Is animal cruelty a marker of interpersonal violence and delinquency? Results of a Swiss national self-report study	Switzerland	National adolescent survey, $n = 3,648$ (NV)	“Have you ever hurt an animal on purpose?” – SR	Animal cruelty was linked to more serious forms of offending, especially violence, vandalism, and acts with components of anger.	2
6	Vaughn et al.	2011	Effects of childhood adversity on bullying and cruelty to animals in the United States: Findings from a national sample	USA	National Epidemiologic Survey: Retrospective interviews with adults, $n = 34,653$ ; animal cruelty = 475 (NV)	CD scale as part of longitudinal survey (“In your entire life, did you ever hurt or be cruel to an animal or pet on purpose?”) – SR	Childhood adversities increase the risk of animal cruelty, but there is less of a cumulative effect for animal cruelty behaviors than bullying behaviors.	1
7	Xu et al.	2011		China			Parents reported higher cruelty for boys, and parents had higher	5

(Continued)

**Table 2.** Continued.

#	Author(s)	Date	Title	Country <sup>a</sup>	Participant demographic	CAC instrument/definition	Summary of findings	SC
			Childhood cruelty to animals: Do mothers' and fathers' reports agree?		Survey using parent report, <i>n</i> = 700 parent pairs (NV)	CABTA (children's attitudes and Behaviors towards Animals scale) – PR	agreement for boy's cruelty than girl's.	
8	Arluke	2012	Interpersonal barriers to stopping animal abuse: Exploring the role of adolescent friendship norms and breeches.	USA	Qualitative retrospective interviews, <i>n</i> = 25 (NV)	Unclear (semi-structured qualitative interview) – SR	Friendship norms, such as being "one of the gang" stopped adolescents from reporting or stopping witnessed animal cruelty.	5
9	Arluke	2012	Bystander apathy in animal abuse cases: Exploring barriers to child and adolescent intervention	USA	Qualitative retrospective interviews, <i>n</i> = 25 (NV)	Unclear (semi-structured qualitative interview) – SR	Friendship norms, such as being "one of the gang" stopped adolescents from reporting or stopping witnessed animal cruelty.	5
10	Girardi and Pozzulo	2012	The significance of animal cruelty in child protection investigations	Canada	Survey of Child Protection Workers (HWR), <i>n</i> = 78	Unique – SR	Few CPWs routinely asked questions about AC, but those who did were more likely to report disclosures of AC. Many CPWs had directly observed AC and almost all indicated that AC was important to consider when making intervention decisions.	5
11	Hensley et al.	2012	The predictive value of childhood animal cruelty methods on later adult violence: Examining demographic and situational correlates	USA	Retrospective survey with prison inmates, <i>n</i> = 180 (PI)	"Any action where the respondent hurt or killed animals when they were children" – SR	Frequent CAC was linked to acts of drowning, shooting, kicking, or having sex with animals. Sex with animals was the only method of CAC that predicted the later commission of adult violent crimes.	2
12	Hensley et al.	2012	Exploring the age of onset and recurrence of childhood animal cruelty: Can animal cruelty be learned from witnessing others commit it?	USA	Retrospective survey with prison inmates, <i>n</i> = 180 (PI)	"Any action where the respondent hurt or killed animals when they were children" – SR	Exposure to animal cruelty, and earlier witnessing increased frequency of cruelty.	4
13	Overton et al.	2012	Examining the relationship between childhood animal cruelty motives and recurrent adult violent crimes toward humans	USA	Retrospective survey with prison inmates, <i>n</i> = 180 (PI)	"Any action where the respondent hurt or killed animals when they were children" – SR	Motives for cruelty did not correlate with interpersonal violence, but recurrence did.	2
14	Sanders et al.	2013	Bullies, victims, and animal abusers: Do they exhibit similar behavioral difficulties?	USA	Retrospective study with young adults, <i>n</i> = 250 (NV)	EWA (Experiences with animals- derived from BIARE) – SR	Animal abusers reported more bullying (traditional and cyber) and more acceptance of aggression than non-abusers.	3

15	Signal et al.	2013	When do psychologists pay attention to children harming animals?	Australia	Practicing Clinical Psychologists (HWR), <i>n</i> = 69	Vignettes for psychologists to interpret	Psychologists reported AC was a more important indicator for Conduct Disorder than ADHD, but was often not highlighted as an important area for intervention.	5
16	Wong et al.	2013	Childhood cruelty to animals in China: The relationship with psychological adjustment and family functioning	China	Survey using parent report, <i>n</i> = 729 parent pairs (NV)	CABTA (Children's Attitudes and Behaviors towards Animals scale) – PR	Parent reports of externalizing behavior predicted animal cruelty. Family functioning (paternal understanding) only had a small impact.	1, 3
17	Knight et al.	2014	Parental predictors of children's animal abuse: Findings from a national and intergenerational sample	USA	NYSFS Longitudinal survey using child and parent reports, <i>n</i> = 1,614; children = 1,067, parents = 547 (NV)	"When you were a child or teenager, did you hurt animals on purpose—to amuse yourself" – SR	Parent AC is predictive of IPV, which is in turn predictive of their children's AC. However parents AC is not directly predictive of children's AC.	1
18	McEwan et al.	2014	Is childhood cruelty to animals a marker for physical maltreatment in a prospective cohort study of children?	UK	E-Risk Longitudinal twin study using parent report, <i>n</i> = 2,232 children (NV)	"Cruel to animals" in CBCL – PR	Child maltreatment was predictive of AC, and strength of association increases with age, SES difficulty, and frequency of AC.	1
19	Walters	2014	Testing the direct, indirect, and moderated effects of childhood animal cruelty on future aggressive and non-aggressive offending.	USA	Pathways to Desistance, retrospective longitudinal survey with young offenders, <i>n</i> = 1,336 (AD)	"Did you ever physically hurt animals on purpose?" – SR	In a longitudinal study of inmates, AC was found to be predictive of both violent and non-violent offending, a relationship mediated by CU traits and interpersonal hostility.	2
20	Girardi and Pozzulo	2015	Childhood experiences with family pets and internalizing symptoms in early adulthood	Canada	Retrospective study with young adults, <i>n</i> = 213 (NV)	Exposure to Aggression Towards Pets Scale – SR	Findings suggest that bonding with pets may support mental health and that exposure to animal cruelty may lead to the development of internalizing symptoms.	4
21	McDonald et al.	2015	Children's experiences of companion animal maltreatment in households characterized by intimate partner violence	USA	Qualitative interview with children, <i>n</i> = 58 (IPV)	Semi-structured interview based on COEP (Children's Observation and Experiences with Animals Survey) – SR	Children exposed to animal maltreatment in an IPV context described a variety of reasons including power manipulation, and stating they sometimes tried to protect or intervene in some way.	4
22	Simmons et al.	2015		USA	NYSFS Longitudinal survey using child and	"When you were a child or teenager, did you hurt	Animal abuse in two generations is predictive of behavior problems,	2

(Continued)

**Table 2.** Continued.

#	Author(s)	Date	Title	Country <sup>a</sup>	Participant demographic	CAC instrument/definition	Summary of findings	SC
23	Walters and Noon	2015	Youthful animal abuse and later problem behavior outcomes: Findings from two generations. Family context and externalizing correlates of childhood animal cruelty in adjudicated delinquents	USA	parent reports, total $n = 2,538$ (NV)  Pathways to Desistance, retrospective survey with young offenders, $n = 1,354$ (AD)	animals on purpose—to amuse yourself” – SR  “Did you ever physically hurt animals on purpose?” – SR	including serious offending and substance abuse.  AC correlated with a wide range of family context and externalizing variables in predicting offending behavior, and may be seen as an extension of proactive (but not reactive) subdimension of the externalizing spectrum.	2, 3
24	Hawkins and Williams	2016	Children’s beliefs about animal minds (Child-BAM): Associations with positive and negative child–animal interactions	UK	Survey with children, $n = 1,217$ (NV)	(CAAC) Children’s Attitude to Animal Cruelty – SR	Higher levels of Belief in Animal Minds related to less acceptance of cruelty and more humane behaviors.	3
25	Parfitt and Alleyne	2016	Taking it out on the dog: Psychological and behavioral correlates of animal abuse proclivity	UK	Retrospective study with young adults, $n = 164$ (NV)	Subsection of BIARE and AAPS (Animal Abuse Proclivity Scale) – SR	Childhood animal abuse and low empathetic concern (measured by IRI) were both predictive of direct and indirect animal abuse in adulthood.	3, 2
26	Satapathy et al.	2016	Psychological evaluation of an adolescent with bestiality behavior	India	Case study with an adolescent, $n = 1$	Bestiality and death of an animal – HWR	Describes a case study of an adolescent with bestiality behavior, along with some of the characteristics, including a history of sexual abuse, alcoholism, witnessing frequent domestic violence, and other factors.	1
27	Baglivio et al.	2017	Juvenile animal cruelty and fire-setting behavior	USA	Retrospective survey of adolescent offenders, $n = 292,649$ , animal cruelty = 1,732 (AD)	Semi-structured interview: “What is the worst thing you’ve done to an animal?” – SR	No strong evidence for the co-occurrence of animal cruelty and fire-setting behavior.	2
28	Browne et al.	2017	Does witnessing animal cruelty and being abused during childhood predict the initial age and recurrence of committing childhood animal cruelty?	USA	Retrospective survey with prison inmates, $n = 257$ (PI)	“Any action where respondents hurt or killed animals when they were children” – SR	Physical abuse and witnessing caregivers engage in animal abuse resulted in earlier age of onset and more repeated childhood animal cruelty.	1
29	McDonald et al.	2017	The role of callous/unemotional traits in mediating the association between animal abuse exposure and behavior problems among	USA	Survey with children and parent report, $n = 291$ mother–child dyads (IPV)	PTS (Pet Treatment Survey) – SR and PR	Exposure to animal maltreatment is related to internalizing and externalizing problems, and CU traits are a significant mediator.	4

30	Parkes and Signal	2017	children exposed to intimate partner violence Revisiting a link: Animal abuse, bullying, and empathy in Australian youth	Australia	Survey with adolescents, <i>n</i> = 63 (NV)	PET (Physical and Emotional Tormenting Against Animals Scale) – SR	Witnessing and/or directly engaging in AA significantly correlated with bullying. For males, engaging in AA, lower affective empathy and a high need for power were found to predict bullying.	3, 4
31	Alleyne and Parfitt	2018	Factors that distinguish aggression towards animals from other antisocial behaviors: Evidence from a community sample	USA	Retrospective survey with adults, <i>n</i> = 384 (NV)	Witnessing animal harm (childhood) and ATAS (Aggression Towards Animal Scale) – SR	Low animal-oriented empathy and low self-esteem distinguished animal abuse offenders. Low empathy mediated the relationship between animal abuse and animal harm exposure, and was stronger for participants with anger regulation issues.	3
32	Arluke et al.	2018	Harming animals and massacring humans: Characteristics of public mass and active shooters who abused animals	Various	Analysis of publicly reported cases of mass shooters, <i>n</i> = 20 (VO)	Unique	Public mass shooters who had abused animals were more likely to be younger, white, and kill more people.	2
33	Bright et al.	2018	Animal cruelty as an indicator of family trauma: Using adverse childhood experiences to look beyond child abuse and domestic violence	USA	Retrospective survey adolescent offenders, <i>n</i> = 81,000, animal cruelty = 466 (AD)	"What's the worst thing that you've ever done to an animal?" – SR	Children admitting to AC were younger at time of first arrest, more likely to be male, and more likely to be White. They are more likely have an array of ACEs beyond family violence and to have four or more ACEs.	1, 2
34	Connor et al.	2018	Factors influencing the prevalence of animal cruelty during adolescence	UK	Survey with adolescents, <i>n</i> = 979 (NV)	CAAC (Children's Attitudes to Animal cruelty), CACB (Children's Animal Cruelty Behaviors) – SR	Acceptance of animal cruelty predicted cruel behaviors, and younger adolescents were more likely to cause harm by accident.	3
35	Haden et al.	2018	An exploratory study of domestic violence: Perpetrators' reports of violence against animals	USA	Retrospective survey with prison inmates, <i>n</i> = 42 (PI)	"Being cruel to animals" item from the Interview for Antisocial Behavior measure	ASPD was linked to CAC. CAC was related to increased use of psychological abuse and sexual coercion in the context of intimate relationships, and threats/perpetration of animal abuse during relationship conflicts.	3, 2
36	Hartman et al.	2018	Intimate partner violence and animal abuse in an immigrant-rich	USA	Parent report, <i>n</i> = 291 (IPV)		Amongst perpetrators of IPV, Hispanic men were less likely than	4

(Continued)

**Table 2.** Continued.

#	Author(s)	Date	Title	Country <sup>a</sup>	Participant demographic	CAC instrument/definition	Summary of findings	SC
			sample of mother–child dyads recruited from domestic violence programs			PTS (Pet Treatment Survey) and CAI (Cruelty to Animal Inventory) – PR	white men to harm pets. Psychological aggression was more predictive of harm to pets than physical assault.	
37	Hensley and Ketron	2018	The predictive ability of childhood animal cruelty methods for later interpersonal crimes	USA	Retrospective survey with prison inmates, <i>n</i> = 257 (PI)	"any action where the respondent hurt or killed animals when they were children" – SR	Recurrent childhood animal cruelty and stabbing was predictive or recurrent interpersonal violence.	2
38	Hensley et al.	2018	Exploring the social and emotional context of childhood animal cruelty and its potential link to adult human violence	USA	Retrospective survey with prison inmates, <i>n</i> = 180 (PI)	"any action where the respondent hurt or killed animals when they were children" – SR	Recurrent childhood animal cruelty was predictive or recurrent interpersonal violence.	2
39	McDonald et al.	2018	Animal cruelty among children in violent households: Children's explanations of their behavior	USA	Qualitative interviews with children, <i>n</i> = 46 (IPV)	Children's Observation and Experiences with Animals Survey (COEP), Cruelty to Animals Inventory (CAI) – SR	Thematic analysis highlighted factors in children's harm of animals, including: history of witnessing animal cruelty/neglect, minimization of CAC, anthropomorphic beliefs, punishing pets out of anger, and others.	3, 4
40	McDonald et al.	2018	Concomitant exposure to animal maltreatment and socioemotional adjustment among children exposed to intimate partner violence: A mixed methods study.	USA	Mixed methods with child and parent report, <i>n</i> = 291 (IPV)	PTS (Pet treatment Survey); COEP (Children's Observation and Experiences with Animals Survey); CBCL (Child Behavior Checklist) – SR and PR	Children with Emotional Behavioral difficulties, as compared with resilient "asymptomatic" children were more likely to have been exposed to more severe AC, express justifications for AC, and have been victimized by IPV perpetrators.	3, 4
41	Newberry	2018	Associations between different motivations for animal cruelty, methods of animal cruelty and facets of impulsivity	UK	Retrospective survey with adolescents, <i>n</i> = 130 (NV)	BIARE (Boat Inventory of Animal Related Experiences) – SR	Specific motivations for cruelty (e.g., retaliation; amusement) were linked to specific methods (e.g., hitting; shooting) and specific types of impulsivity (e.g., negative urgency; sensation seeking) respectively.	3
42	Sanders and Henry	2018	The role of beliefs about aggression in cyberbullying and animal abuse	USA	Survey with young adults, <i>n</i> = 439 (NV)	EWA (Experiences with animals- derived from BIARE) – SR	AC linked to higher incidences of bullying and more acceptance of aggression, with normative beliefs	3



							about aggression linking bullying to AC.	
43	Trentham et al.	2018	Recurrent childhood animal cruelty and its link to recurrent adult interpersonal violence	USA	Retrospective study with prison inmates, $n = 257$ (PI)	"How many times they had hurt or killed animals" – SR	Recurrent childhood animal cruelty was predictive or recurrent interpersonal crimes.	2
44	Walters	2018	Parent and child reports of animal cruelty and their correlations with parent and child reports of child delinquency	USA	Survey of children and parents, $n = 3,379$ (NV)	"Have you ever hurt an animal on purpose" as part of FFCW – SR	Parent but not child reported AC correlated with reports of delinquency.	2
45	Hartman et al.	2019	Exploring empathy and callous–unemotional traits as predictors of animal abuse perpetrated by children exposed to intimate partner violence	USA	Parent and child report, $n = 290$ (IPV)	CAI (parent and child report) – SR and PR	High affective empathy, low cognitive, and CU traits predicted AC, but the effect of affective empathy disappeared when controlling for SES.	3
46	McDonald et al.	2019	Intimate partner violence survivors' reports of their children's exposure to companion animal maltreatment: A qualitative study	USA	Qualitative parent report, $n = 65$ (IPV)	PTS (Pet Treatment Survey) – PR	Three themes emerged related to children's experience of animal maltreatment: (a) direct exposure to AC and related threats, (b) emotional and behavioral responses to AC exposure, and (c) AC as coercive control of the child.	4
47	Plant et al.	2019	It's a dog's life: Culture, empathy, gender, and domestic violence predict animal abuse in adolescents-implications for societal health	Germany, Romania (EU)	Survey with adolescents, $n = 270$ (study 1); $n = 60$ (study 2) (NV)	Unique: "I am cruel to animals" and "I have seen people be cruel to animals" – SR	Results showed that cultures more accepting of AC (Romania) than others (Germany) was predictive of more AC, and that the relationship between AC and gender was mediated by affective empathy.	1, 3
48	Akdemir and Golge	2020	Cruelty to animals in Turkish children: Connections with aggression and empathy	Turkey	Questionnaire with children, $n = 1,248$ (NV)	CAI (Cruelty to Animals Inventory) – SR	Children who were more aggressive and had less empathy were more likely to be cruel to animals. Supporting elements of social learning theory, children in families that did not love animal reported being more cruel to animals.	3
49	Hawkins, Scottish SPCA, & Williams	2020	Children's attitudes towards animal cruelty: Exploration of predictors and socio-demographic variations	UK	Questionnaire with children, $n = 1,127$ (NV)	CAAC (Children's Attitudes to Animal cruelty), CCA (Children's Compassion towards Animals) – SR	Acceptance of AC was predicted by lower empathy, attachment, and lower belief in animal minds. In turn, acceptance of AC predicted	

(Continued)

**Table 2.** Continued.

#	Author(s)	Date	Title	Country <sup>a</sup>	Participant demographic	CAC instrument/definition	Summary of findings	SC
50	Bègue	2020	Explaining animal abuse among adolescents: The role of speciesism	France (EU)	Questionnaire with adolescents, <i>n</i> = 12,344 (NV)	"Have you ever harmed or wounded an animal on purpose?"	lower compassion. There may be different developmental pathways for intentional and unintentional cruelty. AA was more frequent in adolescents with less positive family climate, lower support from friends, lower attachment to school, and with higher anxiety-depressive symptomatology. AA was related to more deviant behavior such as drunkenness and bullying. AA was higher among adolescents who endorsed speciesist attitudes.	3
51	Matijczak et al.	2020	Do animal cruelty exposure and positive engagement with pets moderate associations between children's exposure to intimate partner violence and externalizing behavior problems?	USA	Child and parent report using surveys, <i>n</i> = 2,014 (IPV)	Witnessing animal harm; Children's Treatment of Animals Questionnaire (CTAQ) for positive behaviors	Did not find evidence that positive engagement with pets or AC exposure moderated the association between IPV and externalizing problems.	4
52	Wauthier and Williams	2020	A qualitative study of children's accounts of cruelty to animals: Uncovering the roles of trauma, exposure to violence, and attachment	UK	Qualitative interviews with children, <i>n</i> = 10 (NV)	Qualitative interviews – SR	Qualitative analysis suggested that children referred for animal harm: had small attachment networks which often included pets, tended to interpret ambiguous situations negatively, saw animals as sentient, and struggled admitting to arm.	3

<sup>a</sup>Refers to the country participants were from. SR = Self-report, PR = Parent report, HWR = Health worker report. NYSFS = National Youth Survey- Family Study, FFCW = Fragile Families and Child Wellbeing longitudinal study. Sample violence classifications: NV = Non-violent sample, AD = Adjudicated delinquents, PI = Prison inmate, VO = Violent offenders, IPV = family exposed to Intimate Partner Violence, M/A = Maltreatment/abuse of child. SC = Study classification by theme: 1 = Studies investigating predictors of CAC, 2 = Studies where CAC is predictive of future violent behavior, 3 = Behavioral and psychological correlates of CAC, 4 = Child exposure to or witnessing AC, 5 = Reporting CAC.

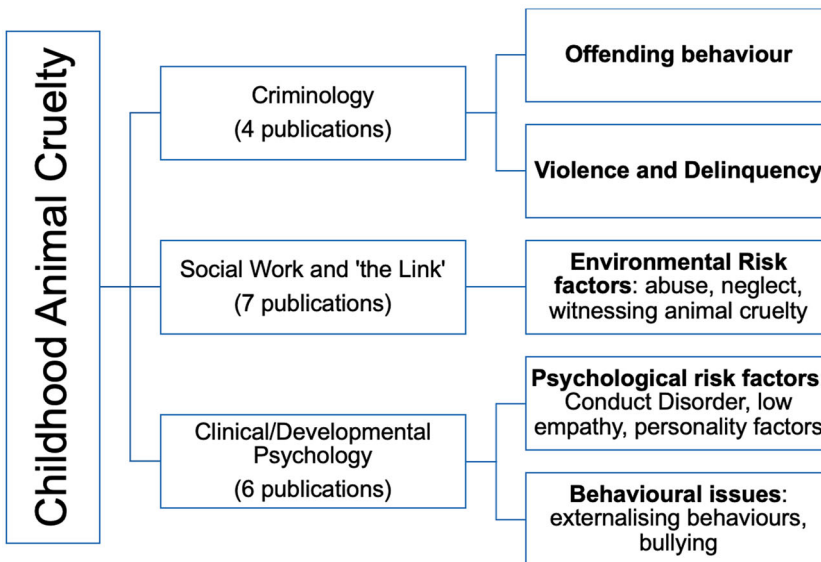
Desistance longitudinal study (Walters, 2014; Walters & Noon, 2015), and two studies used data from the NYSFS longitudinal study (Knight et al., 2014; Simmons et al., 2015).

### Research Question 1: What are the Theoretical Models and Conceptualization of CAC?

Three main disciplines have driven most of the theoretical work on CAC (see Figure 2): (1) criminal and legal perspectives; (2) social work and “The Link”; and (3) clinical and developmental psychology. To answer question 1, we have organized the theoretical and review publications in terms of discipline and main theories.

#### Legal and Criminal Perspectives

The criminal strand of CAC was established by Macdonald, who hypothesized that CAC, along with fire-setting and bed-wetting behavior, were predictive of homicidal tendencies in adulthood: the Macdonald triad (Macdonald, 1963). Although evidence for the triad is weak (Parfitt & Alleyne, 2020), it established CAC as a predictor of serious violent behavior. CAC, especially recurrent CAC, has been found to be predictive of various forms of aggression, violent crime, and incarceration (Gullone, 2012; Hensley et al., 2009). The most prominent theories for this link are the Graduation Hypothesis (Wright & Hensley, 2003) and the Deviance Generalization Hypothesis (Arluke et al., 1999; see also Gullone, 2014). The Graduation Hypothesis proposes that animal cruelty is a precursor to violent offending behavior and suggests it may be a form of rehearsal for later human interpersonal violence (Felthous & Kellert, 1987). The Deviance Generalization Hypothesis states simply that animal cruelty co-occurs with a range of other antisocial behaviors but does not necessarily lead to interpersonal violence.



**Figure 2.** Diagram summarizing the classification of the historic research strands informing the study of childhood animal cruelty.

Four publications reviewed here had strong links to criminal and/or legal perspectives. Holoyada and Newman (2016) reviewed the legal status of animal cruelty in the USA, paying attention to bestiality as a marker for future offending behavior, especially sexual offending. They propose a classification scheme of bestiality behavior based on the motivation of the perpetrator. Longobardi and Badenes-Ribera (2019) undertook a systematic review of the literature on the relationship between animal cruelty in childhood and adolescence and the link to interpersonal violence. They found that *recurrent* childhood cruelty was predictive of adult interpersonal violence and noted that CAC was associated with bullying, behavioral problems, experiences of abuse, and juvenile delinquency.

Chan and Wong's (2019) non-systematic review of the literature (sharing 18 studies with Longobardi & Badenes-Ribera, 2019) describes five theories on the link between CAC and later interpersonal violence: the deviance generalization hypothesis and the graduation hypothesis (explored above), social learning theory, frustration theory, and sexual polymorphous theory. *Social learning theory* (Bandura & McClelland, 1977) suggests that CAC might be learned if children have observed and model cruelty toward animals and human-directed aggression. Updated *frustration theory* suggests that frustrations, as aversive events, generate aggressive inclinations only to the extent that they produce negative affect (Berkowitz, 1989). *Sexual polymorphous theory* (Merz-Perez & Heide, 2004) suggests that aggressive and sexual tendencies are merged in animal sexual abuse.

Mowen and Boman (2019) reviewed the evidence for Agnew's (1998) socio-psychological theory of animal abuse. Agnew hypothesized that four individual factors contribute to animal abuse: (1) individual traits and behaviors (e.g., age, empathy, and physical location), (2) social control (e.g., parental monitoring and bonds to school), (3) socialization (e.g., moral beliefs), and (4) strain (e.g., anxiety). Mowen and Boman (2019) used longitudinal data from 1354 serious adolescent offenders, finding strong support for the role of individual traits and socialization, some support for the role of social control, but no support for the role of strain in self-reported incidence of animal harm.

### ***Social Work and "the Link"***

The second strand of research into CAC comes from studies in social work demonstrating "The Link" between harm to animals and harm to people, including the associations between animal abuse and child abuse (Deviney et al., 1983), animal abuse and Intimate Partner Violence (IPV; Ascione, 2007), and witnessing animal cruelty or domestic violence and CAC (Currie, 2006; Gullone & Robertson, 2008). It underscores the importance of inter-agency cooperation in determining whether families might be at risk when cases of animal cruelty are found (LaCroix, 1998).

Seven publications explored "The Link" between AC and other forms of violence in the family. DeGue (2011) reviews the literature on the overlap of animal abuse with family violence, highlighting the importance of having both an adequate cross-reporting framework and humane education programs. Lee-Kelland and Finaly (2018) explore whether animal abuse committed by a child could be indicative of the child's own abuse at home. They concluded that older children (above 10 years) and females who harm animals are more likely to have been abused, but with children showing behavioral issues such as CD or attention deficit hyperactivity disorder (ADHD), the link was less

clear. Randour et al. (2021) reviewed both empirical research and legislation in the USA, concluding that there is strong evidence for the link between animal cruelty and violence in the home but poor inter-agency coordination and gaps in legislation. Faver (2010) reviews the literature on the role of humane education programs in interrupting the cycle of violence for children who may be exposed to violence and at risk of harming animals. Stanek (2014) introduces educators to “The Link” and suggests that educators can be part of the cross-reporting framework and are in a place to intervene by fostering compassion, building resilience, and facilitating the humane treatment of animals. Mon-salve et al. (2017) consider the role of veterinary practitioners, finding that few publications explore “The Link” from a veterinary perspective and suggest that veterinarians should receive more training on this topic. Finally, Ladney and Meyer (2020) review the literature on the impacts of witnessing animal cruelty during childhood, finding that this can cause trauma and be a risk factor for future violence toward both animals and humans. They recommend that *witnessing* animal cruelty receive more attention as part of “The Link.”

### ***Psychological Perspective***

The third strand explores whether CAC can be deemed an early indication of underlying psychological issues. In 1987, CAC was first used as one of the criteria for CD in children, which is the precursor to antisocial personality disorder (ASPD; Gleyzer et al., 2002), and CAC was measured by the single item on the Child Behavior Checklist (CBCL): “cruel to animals” (Achenbach & Ruffle, 2000). CAC has been linked to various emotional behavioral difficulties, especially externalizing spectrum disorders, and “psychopathic” tendencies such as CD’s modifier CU traits (Dadds et al., 2006) and low empathy (McPhedran, 2009). CU traits are considered the childhood precursor to psychopathy and are defined by low empathy, low emotionality, and disregard for others. Many psychological theories link CAC to aggression, arguing that models such as the General Aggression Model (GAM) can be used to understand CAC (Gullone, 2012). The GAM is an integrative model bringing together existing theories, focusing on socio-cognitive aspects as proximate causes of aggression, and biological, environmental, and personality factors as distal causes (DeWall et al., 2011).

Six publications reviewed here took a range of psychological perspectives, from cognitive and emotional theories to integrative approaches and bioecological systems models. These models are generally compatible with one another and cover both proximal and distal processes and etiology of CAC. Henry (2018) suggests that Social Information Processing (SIP) may help conceptualize the cognitive processes involved in CAC. SIP is a socio-cognitive model of aggression that differentiates between proactive or reactive aggression and breaks down how children exposed to violence are more likely to interpret a situation as negative or threatening, triggering aggressive or violent behavior. Parfitt and Alleyne (2018) propose an Emotional Dysregulation model of animal harm, based on a process model of emotion proposed by Gross (1998). They argue that even complex multi-factor theories such as the GAM focus too much on cognitive processes, underestimating processes surrounding emotion and behavioral regulation. Jegatheesan et al. (2020) propose a more distal model, discussing the effects of the broader social environmental contexts (e.g., individual biological risks, family

factors, community influences, and cultural norms) on children's risk of CAC, as conceptualized in Bronfenbrenner's bioecological model (Bronfenbrenner & Morris, 2006). Felthous and Calhoun (2018) explore the correlation between gender and animal harm, especially the very different harm females tend to engage in, such as animal hoarding. Together, these theoretical and review papers highlight the importance of *interactions* between social environmental and biological/developmental factors in understanding childhood animal harm (CAH).

One publication is aimed at mental health professionals for the treatment of children who have abused animals: *The AniCare Child Approach* (Shapiro et al., 2013). Although the manual focusses on assessment and treatment, it also provides a brief overview of theories relevant to the treatment of CAC. Notably, the authors provide a four-level model of risk factors for CAC, which can be targeted at intervention. Attachment security (level 1) is seen as core to the child's developmental risk, followed by empathy and emotional intelligence (level 2), self-management skills (level 3), and the influence of family and culture (level 4).

### **Research Question 2: Empirical Research Studies and the Risks and Correlates of CAC**

Five conceptually distinct categories emerged for the empirical research studies. Some studies explored more than one topic and were given two classifications. We found that studies mainly explored psychological and behavioral correlates of CAC ( $n = 20$ ), followed by CAC as a predictor of future violent behavior ( $n = 16$ ), environmental factors predictive of CAC ( $n = 10$ ), the impact of exposure to AC on children ( $n = 10$ ), and psychosocial barriers to reporting CAC and associated issues with measurement ( $n = 5$ ):

- (1) *Environmental Predictors of CAC*: Studies investigated various risk factors increasing the likelihood of children engaging in animal cruelty. The most investigated risk factors were forms of child adversity (Vaughn et al., 2011), including as measured by Adverse Childhood Experiences (ACEs; Bright et al., 2018), exposure to violence (Knight et al., 2014), presence of domestic violence (Fielding et al., 2011), and child maltreatment or abuse, including sexual abuse (Boat et al., 2011; Browne et al., 2017; McEwan et al., 2014; Satapathy et al., 2016). Yamazaki et al. (2010) compared a group of maltreated children with control children; although the maltreated children were more likely to abuse animals, they were also more likely to use animals as a source of support. Studies also investigated the effects of cultural acceptance of harming animals, both at the country level (Plant et al., 2019) and family level (Akdemir & Golge, 2020). Additionally, McEwan et al. (2014) found that lower SES increased the strength of the link between child maltreatment and animal cruelty. One study found a small effect on family function: specifically, a father's understanding of their children's needs was negatively related to father-reported CAC (Wong et al., 2013). Relatedly, one study found that adults reporting they had grown up in families who were "not loving" were also more likely to report having harmed animals as children (Fielding et al., 2011).

- (2) *CAC as Predictive of Future Violent Behavior*: Sixteen studies investigated whether CAC was predictive of future violent behavior, especially delinquency and violent offending. The most frequent finding was that *recurrent* CAC was predictive of violent interpersonal offences (Hensley et al., 2018; Hensley & Ketron, 2018; Overton et al., 2012; Trentham et al., 2018). Studies also found a link between CAC and earlier offending (Bright et al., 2018) and various forms of delinquency (Walters, 2018), especially violent acts based on anger (Lucia & Killis, 2011). Some studies explored specific questions, such as whether the type of animal abuse was specifically predictive, finding that although hitting, kicking, and shooting were the most common forms of animal harm, only sexual acts with animals were predictive of later interpersonal offences (Henderson et al., 2011; Hensley et al., 2012b). Simmons et al. (2015) found that CAC was predictive of a host of later problems, including serious offending, substance abuse, and deviant beliefs (measured by asking how “wrong” it was to carry out behaviors ranging from driving over the speed limit to hitting others). Similarly, Walters and Noon (2015) found that CAC was predictive of both violent and non-violent offending and remained predictive when including variables measuring negative family context (e.g., parental arguing) and measures of *reactive aggression* (e.g., poor impulse control, interpersonal hostility). However, CAC was no longer predictive when including variables of *proactive aggression*, suggesting that CAC is a marker of the proactive externalizing spectrum. One study found that CAC was no more predictive of violent than non-violent offending, in contradiction with the Graduation Hypothesis (Walters, 2014). Another study found no evidence for the co-occurrence of animal cruelty and fire-setting behaviors in a population of adolescent offenders, in contradiction with the McDonald triad (Baglivio et al., 2017). Finally, one study found that, for public mass shooters, CAC was associated with younger age of shooting, more deaths, and being White (Arluke, 2018).
- (3) *Psychological and Behavioral Correlates of CAC*: The most investigated factor was empathy, although the results were somewhat mixed. Most studies found that low empathy was associated with CAC (Akdemir & Golge, 2020; Alleyne & Parfitt, 2018; Hawkins & Williams, 2020; Parfitt & Alleyne, 2016; Plant et al., 2019), with several of these studies suggesting it is low affective empathy rather than low cognitive empathy which predicts CAC. However, one study found a less direct link between CAC and empathy (Parkes & Signal, 2017), and one study found the link with affective empathy disappeared when controlling for SES (Hartman et al., 2019). Other psychological constructs investigated were the roles of positive beliefs about animals, belief in animal sentience, and low acceptance of cruelty as protective factors against CAC (Connor et al., 2018; Hawkins & Williams, 2016; Hawkins, Scottish SPCA, & Williams, 2020). Finally, one study, in a community sampling of adults who self-reported antisocial and illegal behavior, found that low self-esteem, along with low animal-oriented empathy, distinguished animal abusers from offenders who engaged in other antisocial behaviors (Alleyne & Parfitt, 2018).

Using a large sample of French adolescents, Bègue (2020) found a link between animal abuse and variables relating to social bonding and strain, including negative family climate, poorer support from friends, lower attachment to school, and higher



anxio-depressive symptoms, as well as the link between animal abuse and deviance, including drunkenness and bullying. Furthermore, they found that speciesist attitudes played a significant role in predicting adolescent animal abuse, as measured by items such as “The life of a human being has more value than animal’s life.”

In terms of behaviors, several studies found that CAC and bullying were linked (Boat et al., 2011; Parkes & Signal, 2017; Sanders et al., 2013; Sanders & Henry, 2018). Studies also reported a link between CAC and externalizing issues, sometimes generally (Walters & Noon, 2015; Wong et al., 2013) and sometimes specifically in the form of CD and/or CU traits (Boat et al., 2011; Hartman et al., 2019; McDonald et al., 2017). This was often found alongside greater aggression or acceptance for aggression (Akdemir & Golge, 2020; Sanders et al., 2013; Sanders & Henry, 2018). One study found that CAC was linked to ASPD and an increased use of psychological abuse, sexual coercion, and cruelty to animals in relationship contexts as an adult (Haden et al., 2018). One study found that different types of impulsivity were linked to different methods and motivations for cruelty: for example, while shooting animals was linked to sensation seeking, hitting was linked to negative urgency (Newberry, 2018). One study showed that children exposed to animal cruelty were more likely to have emotional-behavioral difficulties than asymptomatic children (McDonald et al., 2018a).

Finally, two studies took a qualitative approach to understanding CAC. McDonald et al. (2018) interviewed children about their animal harm; their thematic analysis found that factors included witnessing animal cruelty or neglect, minimizing AC, punishing pets out of anger, and anthropomorphic beliefs about animals. Wauthier et al. (2020) found that children struggled admitting to harm, saw animals as sentient, and tended to have small attachment networks in which they included their pets, suggesting that children have complex relationships with animals even in cases of harm.

- (1) *Children’s Exposure to AC*: Ten studies focused on the effects of witnessing animal cruelty in childhood, confirming that this can have serious effects especially in perpetuating cycles of animal cruelty (Hensley et al., 2012a; MacDonald, 2018a). Other negative effects associated with witnessing AC included increasing internalizing and externalizing problems (Girardi & Pozzulo, 2015; McDonald et al., 2017), increased bullying (Parkes & Signal, 2017) and increased emotional behavioral difficulties (McDonald et al., 2018b). There were some slightly conflicting results on the role positive relationship with pets played in mitigating some of these relationships: for example, while Girardi and Pozzulo (2015) found that positive relationships with pets might support mental health, Matijczak et al. (2020) did not find that relationships with pets moderated the association between IPV and externalizing problems. Some studies investigated the context of children’s exposure, suggesting that AC could be used to coercively control the child (McDonald et al., 2015; McDonald et al., 2019). One study, in a sample of mother-child dyads, reported that ethnicity and cultural background may correlate with a partner’s likelihood of harming pets, with Hispanics being less likely to harm pets than non-Hispanic US perpetrators (Hartman et al., 2018).



- (2) *Psychosocial Barriers to Reporting and Measuring CAC*: Five studies investigated how CAC is reported. One study found that parental reports of CAC generally agreed but that they reported higher cruelty for boys and there was more agreement between parents on boys' cruelty than girls' (Xu et al., 2011). Two studies reported that that peer pressure and appearing to be "one of the gang" were reasons preventing adolescents from reporting instances of AC they witnessed (Arluke, 2012a, b). One study, using vignettes, investigated the degree to which clinical psychologists identified CAC as an important indicator of either ADHD or CD (Signal et al., 2013). They found that they were much more likely to focus on CAC for the CD than the ADHD vignette but did not list it as an important area for targeted intervention in either. Finally, one study explored how Child Protection Workers (CPW) explored AC, finding that few CPWs routinely asked questions but that many had observed AC and almost all indicated it was important to consider when making intervention decisions (Girardi & Pozzulo, 2012).

### ***Research Question 3: Methodological Issues and Limitations***

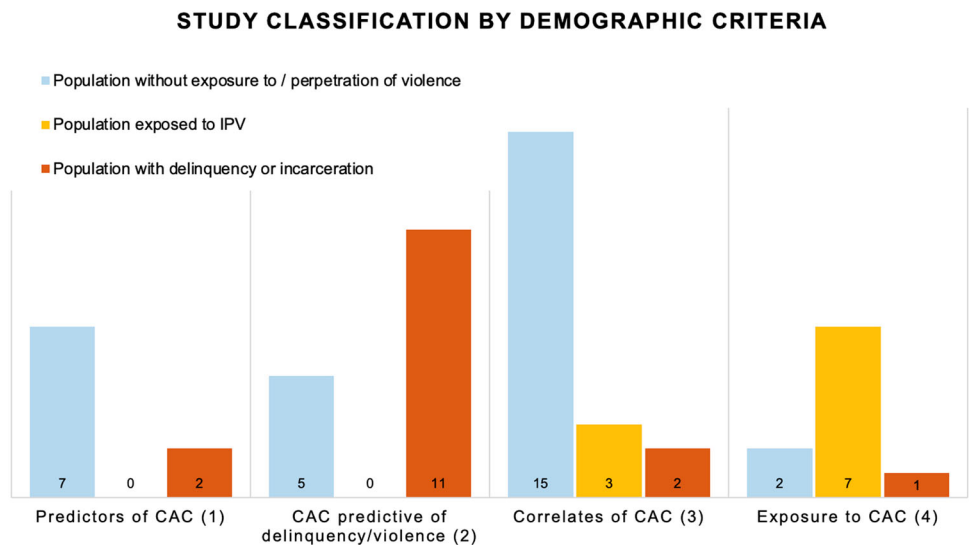
#### ***Reporting CAC: Focus on Self-Report and Retrospective Methodologies***

Original empirical research studies were classified based on participant demographics and report methodology. Most striking was the strong reliance on self-report, with 77% of empirical studies using it ( $n=40$ ), followed by parent report ( $n=9$ ) and health worker report ( $n=4$ ; note some studies used two methods). None of the studies reviewed used observational data for animal harm. Nearly half of the original empirical research studies were retrospective in nature ( $n=24$ ; 46%), using either inmate retrospective ( $n=9$ ), adolescent retrospective ( $n=7$ ), or adult (non-incarcerated) retrospective ( $n=8$ ) reports. In fact, only 35% ( $n=18$ ) of studies had at least one element which directly surveyed children or adolescents about recent or ongoing behavior.

#### ***Populations Characterized by Violence***

There may be a tendency in the literature to rely on specific populations defined either by exposure to violence (e.g., victims of domestic violence) or perpetration of violence (e.g., prison inmates). This is potentially problematic for generalizability, especially if these studies investigate whether CAC is predictive of these same factors. Authors have cautioned that relying on inmate populations might inflate the relationship between CAC and later violent behavior (Arluke et al., 1999) while relying on groups with exposure to domestic violence without comparison makes it difficult to interpret results on the strength of "The Link" (Monsalve et al., 2017). To explore this issue, studies were classified using the population's pre-existing perpetration-of/exposure-to violence as a criterion. Nearly half of the original empirical research studies (47%) investigated a population associated with violence or antisocial behavior ( $n=21$ ): prison inmates ( $n=7$ ), adjudicated delinquents ( $n=5$ ), children or families exposed to IPV ( $n=7$ ), or other forms of violence ( $n=2$ ; maltreatment, mass shootings).

We sought to establish whether the studies reporting a link between CAC and various types of violence (e.g., CAC as a predictor of violent offending) relied on population



**Figure 3.** Visualization of empirical studies’ main thematic classifications based on categorization of their sample population.

samples where violence was more common (e.g., prison inmates in medium or maximum-security prisons; Bottoms, 1999). Overlaps between the research question and inclusion criteria may threaten the external validity of studies, even if they are otherwise well designed. To visualize this, studies’ exposure /perpetration of violence classification was graphed against the studies’ main thematic classification (from the section above). Figure 3 shows that the different thematic classifications tended to use different populations regarding perpetration of or exposure to violence. For example, prison inmate or adjudicated delinquent populations made up nearly 68% of studies investigating CAC as predictive of violent behavior, and populations exposed to IPV made up 70% of studies investigating the effects of exposure to AC in childhood. Other topic areas such as behavioral and psychological correlates of CAC had a more balanced distribution of populations, primarily using populations without exposure to violence.

**Research Question 4: Definition and Operationalization of CAC**

Definitions of animal cruelty are often inconsistent, making the comparison of results across studies difficult (Hawkins et al., 2017; Longobardi & Badenes-Ribera, 2019). Although Ascione’s (1993) definition (“all socially unacceptable behavior that intentionally causes unnecessary pain, suffering or distress and/or death to an animal”) seems widely adopted, this does not necessarily translate into consistent operationalization, which can vary from single items such as “cruel to animals” in the Child Behavior Check List (CBCL) to complex measures such as the Boat Inventory of Animal-Related Experiences (BIARE), which has 20 items in the full version. More recent measures, such as the Children’s Attitudes toward Animal Cruelty (CAAC; Connor et al., 2018; Hawkins et al., 2019) use more precise language, specifying what counts as an “animal” (e.g., vertebrates) and which

**Table 3.** Summary of childhood animal cruelty (CAC) measures used in empirical studies.

Measure of CAC	Measure authors/original source	Number of studies
<i>Multi-item measures</i>		
Boat Inventory of Animal Related Experiences (BIARE) and derived measures	Boat (1999)	5
Pet Treatment Scale (PTS)	Ascione (2011)	4
Cruelty to Animal Inventory	Dadds et al. (2004)	3
Children's Observation and Experience with Pets Survey (COEP)	Ascione et al. (2007)	3
Children's Acceptance of Animal Cruelty (CAAC)	Connor et al. (2018)	3
Children's Attitudes and Behaviors Towards Animals (CABTA)	Guymier et al. (2001)	2
Aggression Towards Animals Scale (ATAS)	Gupta and Beach (2001)	1
Physical and Emotional Tormenting (PET)	Baldry (2004)	1
Animal Abuse Proclivity Scale (AAPS)	Alleyne et al. (2015)	1
Children's Treatment of Animals Questionnaire (CTAQ)	Thompson and Gullone (2003)	1
<i>Single item measures</i>		
Hurt or kill an animal	[Retrospective Prison inmate studies]	8
Hurt (or wound) on purpose	e.g., Pathways to Desistance survey	4
Cruel to an animal	e.g., Child Behavior Checklist	4
Hurt for amusement	e.g., NYSFS Longitudinal survey	2
Worst thing done to an animal		2

behaviors might be considered cruel (e.g., kicking, hitting, teasing, etc.). Table 3 summarizes the different measures used in the studies covered in this review (note: qualitative studies are not included).

In the current review, operationalizations of CAC were quite varied. Commonly used multi-item questionnaires included the BIARE, CAAC, and Cruelty to Animals Inventory. Single item questions (e.g., "any action where respondents hurt or killed animals when they were children") were often used in larger surveys. Just under half of the empirical research studies used a multi-item measures ( $n = 24$ , 46%), with slightly less using a single item indicator ( $n = 20$ ; 38%), and the remaining studies either did not report the measure they used, used a non-standardized unique measure, or only measured *exposure* to AC ( $n = 8$ ). Studies also focused on a range of severities, from "any type of harm, including accidental harm" (CAAC; Hawkins & Williams, 2020) to "cruelty done on purpose with an intent to amuse oneself" (Knight et al., 2014; Simmons et al., 2015).

Another issue surrounding the definition of CAC is whether it is developmentally appropriate to apply the same definition to child and adult animal cruelty. Adult definitions of AC are heavily centered on the *intentionality*, but it is uncertain whether children can be said to be truly intentional in their actions of harm to animals. Neurodevelopmentally, the maturation of the prefrontal cortex during adolescence may be necessary for behavioral regulation and full moral judgement (Delmage, 2013). From a legal perspective, the UN Committee of the Rights of the Child sets the recommended minimum age of criminal responsibility at 12 years and advocates that it should be raised to 14 years.

None of the studies discussed the issue of childhood intentionality: most measures explicitly focused only on intentional actions (e.g., BIARE, PET), and even when measures were not explicitly worded to only include intentional actions

(e.g., CABTA), this was often implied (e.g., “my child causes harm to animals”). Only one measure, the CAAC, explicitly allows for animal harm which is accidental (Connor et al., 2018). In fact, Hawkins and Williams (2020) used this measure and highlight that there may be different developmental pathways for intentional and accidental harm. Parfitt and Alleyne (2018) do note that *abuse* and *cruelty* are often used interchangeably, even though they imply different things: cruelty hints at enjoyment and sadism, while abuse is a more general term. Yet even their discussion does not fully address the problem of intentionality, since abuse still carries connotations of intentionality and responsibility.

## Discussion

The aim of this study was to provide a meta-narrative synthesis of recent CAC literature. While there is accumulating consensus on the correlates and risk factors associated with CAC, there may be methodological and conceptual issues that constrain the generalizability of our current understanding of CAC. First, we discuss research findings and how these relate to established theories (Research Questions 1 and 2); second, we discuss the impact of the conceptual and methodological issues in the CAC literature (Research Questions 3 and 4); and finally we present suggestions for future directions in research and practice.

### *Theoretical Models and Original Empirical Research*

Models and theories of CAC belong to three historical strands: criminology; social work and “The Link”; and psychology. There are no “general” models of CAC integrating perspectives, and the existing models tend to be focused on pathological outcomes, viewing CAC as a marker of escalating violence (MacDonald triad; Graduation Hypothesis), delinquency (Deviance Generalization Hypothesis), or aggression (SIP, Emotional Dysregulation, GAM). The most extreme of these models, the MacDonald Triad and the Graduation Hypothesis, have not received empirical support (Parfitt & Alleyne, 2020; Walters, 2013; Walters, 2014).

Original research studies were thematically classified into five main categories, and the findings generally confirmed: (1) relations between violent environments and CAC, (2) CAC being predictive of problematic behaviors such as violence, deviance, or bullying, (3) certain psychological traits (e.g., low empathy, attitudes accepting of aggression) and behaviors (e.g., bullying) correlate with CAC, and (4) that witnessing AC is associated with serious issues, such as increasing behavior problems. These results can be accommodated by “milder” models of CAC, such as the Deviance Generalization Hypothesis, SIP (Henry, 2018), Emotional Dysregulation (Parfitt & Alleyne, 2018), alongside the importance of social environment (Jegatheesan et al., 2020) and culture (Akdemir & Golge, 2020; Plant et al., 2019). These theories are not mutually exclusive and may pave the way toward a more integrated understanding of the risk factors for CAC. Existing research shows that empathy, emotional dysregulation, aggression, self-esteem, and attitudes toward animals are linked (Garofalo et al., 2016; Schipper & Petermann, 2013; Taylor & Signal, 2005). Models considering the interaction between these factors more deeply would provide a more holistic understanding of CAC.

Certain risk and protective factors may be overlooked by the literature. One framework which has received sparse consideration is attachment (Thompson & Gullone, 2008). Attachment may tie many of the risk factors for CAC together; it is linked to empathy (Murphy & Laible, 2013), emotion regulation (Kerns et al., 2007), and behavioral disorders (Bureau et al., 2020). Insecure attachment has been linked to the incidence of CD and CU traits (especially disorganized attachment; Pasalich et al., 2012; Theule et al., 2016), poorer emotion regulation (Panfile & Laible, 2012), lower self-esteem (McCormick & Kennedy, 1994), and childhood aggression (Ooi et al., 2006). Linking theories of CAC to attachment may have the added benefit of allowing for greater dialogue with the “positive” CAI literature, which has noted the role of attachment to pets in explaining their positive effects, including on insecurely attached children (Wanser et al., 2019) and on children who witness IPV (Hawkins et al., 2019). In fact, attachment to animals does not necessarily correlate strongly with a person’s primary attachment pattern (Julius et al., 2012). Children who have experienced relationship trauma may show more secure attachment patterns toward their pets than to human attachment figures (Julius et al., 2010), despite experiencing abuse also being a risk factor for animal harm (Yamazaki et al., 2010).

### ***Conceptual and Methodological Issues***

This review highlights two methodological issues and two conceptual issues at risk of affecting the CAC literature: (1) over-reliance on retrospective self-reports, (2) disproportionate use of populations related to either IPV or perpetration of violence, (3) wide variety in operationalized definitions of CAC, (4) lack of consideration of childhood development regarding intentionality and responsibility for harm perpetrated.

### ***Issues with Research Methodologies***

Reliance on retrospective, self-report methodologies with potentially non-generalizable populations (see also Hawkins et al., 2017; Longobardi & Badenes-Ribera, 2019) remain problematic. Many of the studies relied on samples pre-defined by violence, either as perpetrators or as victims. The problem of studying troubled adults to draw conclusions about childhood cruelty has been highlighted before and has served as an argument against “strong” theories, such as the Graduation Hypothesis, and in favor of “milder” theories, such as the Deviance Generalization hypothesis (Arluke et al., 1999).

Retrospective self-reports are known to be inaccurate and prone to recall biases (Bernard et al., 1984). Self-report questionnaires were the most common method of investigation, which is concerning because social desirability bias is a well-established problem affecting self-report methodologies (van de Mortel, 2008). Given that animal cruelty is a highly stigmatized and undesirable behavior, we might expect a strong social desirability bias for items relating to animal harm. Consequently, people who will freely admit to animal cruelty may have a lower need for social desirability, which is a defining feature of psychopathy. Studies have demonstrated that people with psychopathic traits will have a reduced tendency to “fake good” in questionnaires (Verschuere, 2014). The issue is that the link between animal harm and psychopathic traits (Kavanagh et al., 2013) and its potential precursor, CD, in children (Dadds et al. 2006) may be artificially

magnified owing to self-report biases because people with those traits are the most likely to admit to cruelty. This is especially the case where measures use stigmatizing terminology, such as “which of these animals have you been cruel to?” (Cruelty to Animals Inventory), rather than using more neutral terminology, such as “have you ever hurt an animal?” (BIARE) or even listing specific behaviors, such as “have you ever hit an animal?” (CAAC).

### **Defining and Conceptualizing CAC**

Definitions of CAC varied not only in their precision but also in the severity of cruelty investigated, with a focus on “severe” forms of cruelty. This seemed to link to the type of population investigated, suggesting that there may be issues with generalizability to less extreme populations and definitions. Furthermore, definitions of CAC were not tailored to child development and did not allow for the imprecise concept of intentionality in childhood. Children are more likely to lose control of their emotions and behavior, may lack knowledge of welfare needs and what causes harm (Burich & Williams, 2020; Muldoon et al., 2016), and are more likely to accidentally hurt an animal.

The stigma associated with labeling a child as “cruel” further raises the question of whether “cruelty” is an appropriate term. We propose that many cases traditionally labeled “child animal cruelty” or “child animal abuse” should simply be labeled as “child animal harm” (CAH), *especially* where the intentions and circumstances of the child’s harm are not known or fully explored. This is not to suggest that children do not sometimes harm animals with intent, but that this should be established rather than assumed. The focus on intentionality is also problematic because it is decoupled from animal welfare legislation. Animal harm can happen outside of intentionality, such as lack of knowledge or due to emotional and cognitive issues, and can take many forms: from emotional tormenting to physical injury or neglect.

In summary, the reason the CAC literature does not seem to have more nuanced models is likely to be both methodological and conceptual. Much of the historical research on CAC is based on “extreme” populations and “extreme” definitions of harm. There is no discussion of the *spectrum* of interaction or types of childhood harm toward animals, nor is there a discussion of the protective and risk factors which might increase or decrease the likelihood of infringing on the *whole range* of animals’ various welfare needs.

### **Theoretical and Practical Implications**

We propose three shifts the child animal-harm literature could make to have a more nuanced conceptualization and which could improve access to early intervention:

- (1) *Focusing on All Types of Harm to Animals*: Focusing only on intentional physical harm toward animals causes a disconnect with animal welfare laws, which in the UK recognize many types of harm, such as neglect, emotional harm, and exploitation, and does not separate cases based on intentionality (UK Animal Health and Welfare Act, 2006). Understanding and studying the spectrum of animal harm can protect animal welfare *across* the five welfare freedoms: (1) freedom from thirst/hunger, (2) freedom from

pain, (3) freedom from discomfort/exposure, (4) freedom from fear or emotional distress, and (5) freedom to express normal behavior (see Mellor, 2016).

- (2) *An Approach to Animal Harm That is Not Stigmatizing or Pathologizing*: Focusing on pathological outcomes (e.g., violence or psychopathology) may prevent conceptualizing animal harm as a spectrum, with a range of developmental pathways. This in turn may reduce the incentive to develop evidence-based interventions for children. Furthermore, therapists argue it is important not to stigmatize animal-harm behavior during treatment (Gupta, 2019). The harm associated with making pathologizing or stigmatizing assumptions about childhood mental disorders is well established and can include: not seeking help or treatment, lower self-esteem, and discrimination or devaluation through stereotyping, especially mental disorders associated with “dangerousness” (Mukolo et al., 2010).
- (3) *Developmentally Appropriate Definitions*: Terminology referring to *cruelty* in childhood is dissociated from childhood development theory. Although there have already been calls to stop referring to CAC and instead adopt the term childhood animal *abuse* (Ascione, 2011; Parfitt & Alleyne, 2018), the terms *abuse* and *cruelty* are problematic, and the term CAH should be adopted unless there is clear evidence of intentionality. We propose the following definition of CAH: “Any act, of commission or omission, where a child negatively impacts an animal’s welfare, intentionally or unintentionally.” *Cruelty* might be reserved for behaviors that are both intentional and purposefully harmful (i.e., the primary intent is to cause harm to the animal), while *abuse* might be used for any intentional behavior, even if harm is not the primary intent (e.g., punishment). As children are still developing emotional regulation and executive functioning (Anderson, 2002; Lévesque et al., 2004), and have incomplete knowledge about animal welfare needs (Muldoon et al., 2016), it seems especially important to be cautious with this terminology.

Reconceptualizing child animal harm as a spectrum may help replace the current dichotomized approach to CAI. This allows for a graded approach, both for the design of animal welfare education interventions (Muldoon & Williams, *in press a, b*) and for more integrated research on factors which we might expect to influence CAI across the breadth of the spectrum. Of particular interest are constructs such as attachment and family functioning (Muldoon et al., 2019; Wanser et al., 2019), emotional as well as behavioral regulation (Wauthier et al., 2020), and empathy or attitudes (Hawkins & Williams, 2017). Finally, researchers should attempt to design methodologies that work directly with children, and refrain from relying too heavily on retrospective adult self-report and use of stigmatizing language.

## Conclusions

Research on CAC is establishing a growing knowledge base on the risk factors, outcomes, and psychological and behavioral issues associated with cruelty to animals in childhood. However, extreme conceptualizations of CAH make the alignment of the CAC literature with animal welfare legislation difficult, may lead to pathologizing or stigmatizing assumptions, and could be developmentally inappropriate. It is important to approach



childhood animal interactions as a spectrum, from negative to positive behaviors, and to acknowledge that a child's relationship with an animal is rarely unidimensional. The extreme ends of this CAI spectrum are well captured by existing literatures, but the nuance of children's relationships with animals is yet to receive detailed exploration. Researchers should use the term CAH and conduct research directly with children or adolescents.

## Disclosure Statement

No potential conflict of interest was reported by the authors.

## Funding

This work was completed as part of a PhD funded by the University of Edinburgh's College of Arts Humanities and Social Science Doctoral Research Awards.

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